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ABSTRACT

This study examined the relative status of 4,917 deaf male and female respondents (mean age of 25) on the Secondary School Graduate Followup Program for the Deaf survey from the years 1982 through 1989. Graduates were asked questions pertaining to their labor force participation, continuing education activities, occupations, income, and job satisfaction. Among findings were the following: deaf women complete postsecondary programs as often as deaf males (less than half the rate of hearing peers) and usually earn subbaccalaureate degrees; more females than males earn master's level degrees, but females earn doctorates one fourth as often as males; most of the degrees earned by deaf females are in Business and Office programs; without postsecondary education, deaf youth experience high unemployment rates; females, with or without subbaccalaureate degrees, continue to suffer high unemployment rates beyond age 35; deaf women with baccalaureate degrees are usually professionally employed but earn lower salaries than deaf males and similarly employed hearing persons. Deaf women with or without subbaccalaureate degrees are typically employed in clerical positions (especially in medical records), or as semiskilled or unskilled laborers. A listing of postsecondary instructional programs of currently enrolled respondents is appended. (Includes 39 references.) (DB)

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THE STATUS OF DEAF WOMEN:

A Comparative Look at the Labor Force, Educational and Occupational Attainments of Deaf Female Secondary Graduates

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INTRODUCTION

The Secondary School Graduate Followup Program for the Deaf annually collects information via survey from deaf graduates of secondary schools from around the country who are members of the Followup Program. The majority are residential schools for the deaf, although there are five day programs. The graduates are asked questions pertaining to their current status, that is, labor force participation, continuing education activities, occupations, income, and some measures of job satisfaction. Since 1981 five graduating classes have been surveyed annually. The design includes classes one, three, five, ten and twenty years since graduating from high school, increased by one year, each year of the survey. Classes as far back as 1960 and as current as 1988 have been surveyed, contributing to a data base of more than 5500 responses.

PURPOSE

Generally, results from the annual surveys have been reported in terms of years out of high school, age groups, and in some cases by male and female outcomes. Over the years, differences in results by gender have been observed but have not been the subject of any one report. However, these observed differences have revealed a pattern of significantly discrepant outcomes. This paper is devoted to examining in greater detail, the relative status of deaf male and female respondents to the Followup for labor force activities, postsecondary educational pursuits, occupations and socioeconomic levels. Their status is presented within the context of comparable information on their peers nationally.

PERSPECTIVES

Among the literature of the past decade pertaining to deaf adults are references made to: "double-stereotyping" (Egelston-Dodd, 1977), a "double handicap" (Egelston, 1975), "double-pronged stereotyping" (Moccia, 1981), "double jeopardy" (Wax and Danek, 1982), or the "double whammy" (Rosen, 1988) experienced by deaf women. What is this dual status ascribed and why is it the source of much concern? Simply stated, deaf women are described as disadvantaged on the one hand by sex-stereotyping, which is then coupled with deaf-stereotyping. The effects of this status have been lower employment and more restricted career opportunities relative to other women generally, and relative to deaf men as well. In their study of 1972 National Census of the Deaf Population and a 1977 followup sample, Barnartt and Christiansen (1985) discovered that unemployment had increased for all groups - hearing and deaf, both males and females alike over that time frame. But the status of deaf women declined proportionately more than hearing persons or deaf males. In addition to decreased labor force participation, they experienced the highest unemployment rate of all.

Other studies have pointed to sex role stereotyping and the internal limitations it has placed upon career growth of deaf females (Egelston and Kovolchuk; 1975 and Egelston-Dodd, 1977; Cook and Rossett, 1975; Kolvitz & Ouellette, 1980; Anderson and Krueger, 1982). Generally, they found that the deaf culture supports more traditional views of what are appropriate roles and occupations for males and females, thereby further limiting career choices of deaf females. Deaf males in particular were found to hold more conservative views of sex roles than hearing peers. In a more recent replication of the Kolvitz and Ouelette study, Stauffer and Long (1990)

found that hearing adolescents, particularly females, had over time become more liberal in their thinking about what are appropriate careers and roles for the genders relative to deaf peers. However, while deaf males had grown somewhat more liberal in their views than was previously found, deaf females maintained their conservative attitudes. Although more opportunities have been made available, if deaf women perceive fewer occupations as being appropriate for them, they will continue to consider a narrower scope of career options.

In addition to attitudes, deaf students have been disadvantaged by guidance programs which have continued to channel them into traditional, stereotyped roles, and by curriculums which have not included career education programs geared for their particular needs (Egelston-Dodd, 1978). Limited or outdated science curriculums in some schools serving the deaf have further been cited as an impediment to the postsecondary attainments of deaf students, particularly affecting females (Egelston-Dodd, 1977). The findings of these studies provided the impetus for development of better career education programs for the deaf.

In a recent book dealing with school-to-work transition for deaf students, Allen, Rawlings and Schildroth (1989) examined the vocational study areas undertaken by 17 to 19 year old deaf students. They found that over a third of the females were concentrated in office work courses, and another fourth were either in home economics or commercial arts. The males, on the other hand, were in drafting, construction trades, or automotive trades. So it seems that despite career awareness efforts of the past decade, deaf students continue to select or to be channeled into areas of study that will result in gender associated occupations. It is evident that

much more needs to be done in order to overcome a tradition of stereotyping that is both externally imposed based upon deafness, and internally imposed based upon the sex role perceptions held by deaf males and females. They are in effect, missing out on educational opportunities which they are going to need even more than ever as our economy shifts toward demanding increased levels of education and training from its workers.

SUBJECTS

Secondary School Graduate Followup Survey data from the years 1982 through 1989 have been selected for this study. Females comprise 49 percent and males 51 percent of a total sample of 4917 respondents. The most recent graduates are just under 21 on the average, while those twenty years out are a little over age 40. Due to the Program's design there is a weighting toward more recent graduates and therefore, the mean for the entire sample is age 25.

RESULTS

POSTSECONDARY EDUCATION

Level of education, among other factors, plays a primary role in the attainments of adults. The next section takes a look at what are the educational achievements of our followup sample males and females and how they compare with hearing peers.

The data gathered on the deaf population of the United States by Schein and Delk (1974) found that deaf females went onto postsecondary education less frequently than deaf males, and that females were less

likely to complete their first year of training (Wax & Danek, 1982). Data from the Secondary School Graduate Followup Program over the years (1982-1989) have shown that enrollment and completion rates have been equivalent for both males and females, although not as high as among their hearing counterparts nationally. Each year on the average, 64 percent of the survey sample indicate that they have undertaken some form of postsecondary education whether it be simply continuing education courses, apprenticeships, licensing or matriculation in a college degree programs.

The deaf high school graduates ages 18 to 24 responding to the followup survey have reported college enrollment rates which have averaged 42 percent for both males and females. National enrollment figures for high school graduates of the same age indicate variable rates year to year for males and females, but which run on the average close to 56 percent (BLS, 1987) - males demonstrating slightly higher enrollments overall.

While percentages attempting postsecondary education are high, particularly among those recently graduated from high school, overall approximately 16 percent of the entire sample each year have reported actually having completed award programs. And it is worth noting that males and females in the samples have shown less than one percent difference for completion rates. How does this compare with rates of completion nationally? Table 1 contains the levels of education attained by males and females age 18 to 44.

Almost twice as many hearing persons go on to complete one- to three- year degrees compared to our deaf sample. At the baccalaureate level and above, the breach between hearing and deaf educational attainments widens significantly. For every deaf male nearly seven hearing males

complete a four-year or higher degree. Between deaf and hearing females that ratio is closer to one in five. And these figures are thought to be slightly high relative to the deaf population as a whole. It is also interesting that the male/female ratios are reversed for the hearing and deaf populations, i. e., the deaf females have slightly higher education levels overall relative to deaf males.

TABLE 1. Level of Education Completed by Persons age 18 to 44.

	SAMPLE	NATION
HIGH SCHOOL ONLY		
Males	83.3%	46.5%
Females	83.9%	50.2%
1 - 3 YEARS COLLEGE		
Males	12.9%	26.2%
Females	11.5%	27.6%
4 YEARS OR MORE COLLEGE		
Males	3.8%	27.3%
Females	4.6%	22.2%

Source: Educational Attainment of Workers, March 1988. U. S. Bureau of Labor Statistics (July, 1988).

While percentages enrolling in and completing postsecondary programs are equivalent overall for deaf males and females in the Followup sample, the distribution of degrees they have earned differs by type. The percentages of degree types earned are presented in Table 2. Comparing males and females within our Folowup sample distribution, the largest difference between them for degrees earned occurs for diplomas and master's degrees. Males earned more of the former, females more of the latter.

Females also earned a slightly higher percentage of baccalaureate

TABLE 2. Postsecondary Degrees Earned - Percent Type by Gender.

DEGREE	SAMPLE		NATIONAL	
	Males	Females	Males	Females
Certificate	27.8	28.0	7.8*	8.7*
Diploma	29.7	22.8		
Associate's	19.4	20.6	21.3	25.1
Bachelor's	17.7	19.5	52.8	50.4
Master's	5.3	9.0	15.6	14.6
Ph.D.	None	None	2.4	1.2

* National data reported award types below the associate's level as a combined figure.

degrees relative to males. From this vantage point one might conclude that deaf females are predisposed to earn higher level degrees compared to their male counterparts. No doctoral degrees were reported among the followup respondents; however, in another study which reported exclusively on deaf professionals it was cited that eight percent of male versus two percent of female master's degree earners had gone on to earn Ph.D.'s (Schroedel, 1987). So, at the terminal degree level deaf males are more highly represented than are deaf females, reflective of what also occurs in the general population.

More than half of all postsecondary degrees earned by the Followup respondents are diplomas and certificates, while in contrast, the same proportion of persons nationally are earning baccalaureate degrees. Males in the general population are three times as likely to earn masters degrees

than are deaf males. The same relationship occurs between females of each group, although it is less discrepant.

We now have a fairly good picture of the level of education our comparative groups achieve. But the picture is not complete without also considering the instructional programs in which degrees have been earned.

Programs of Study Undertaken

The postsecondary educational pursuits of deaf high school students have been described as limited relative to hearing peers due to several factors. As discussed previously, deaf students tend to stereotype careers along traditional gender lines, as well as by deafness. They are also influenced by guidance counseling which unwittingly or otherwise, has reinforced limited career choice patterns of deaf males and females. Lack of career awareness and education programs in the schools has also contributed to the narrower scope of career paths pursued by deaf students.

Career aspirations of young adults are highly influenced by exposure to role models. Deaf females in particular, do not see enough women working in a variety of occupations (Egelston-Dodd, 1977). Deaf students, especially those who have been educated in residential schools rarely see women in roles other than teacher or dorm counselor. Until recently, young males and females in schools for the deaf were very segregated, and girls spent most of their time with female personnel who instilled very traditional ideas about a deaf woman's role in society (Becker & Jauregui, 1981).

Other research has pointed to the lack of influence hearing parents of deaf children have had on their career aspirations. For deaf

children away at residential schools where most of their socialization occurs, this separation combined with the frequently inadequate communication which occurs between hearing parent of deaf children (Lerman & Guilfoyle, 1970) limits their career development. Moreover, earlier research found that hearing parents of deaf children believed deafness limited job opportunities (Munson & Miller, 1979), and relative to deaf parents, had lower occupational expectations for their deaf children (Meadow, 1967).

Choice is confined by availability of program options. To a certain extent choices have been limited because relatively few institutions offering sufficient support services to deaf students existed, and among those available most have have been vocationally oriented (Barnartt & Christiansen, 1985). Still, over the past twenty years due in part to recognition of employment problems experienced by deaf persons, legislation was enacted and numerous programs established for the postsecondary education of the deaf. There are currently over 150 institutions offering college and career programs for deaf students in the United States (Rawlings, Karchmer & DeCaro, 1988).

What programs do deaf high school graduates pursue college at the college level? Thus far the literature has indicated that deaf males have tended to choose college programs in Business Administration, Math, Accounting, Engineering, Computer Sciences, Technologies, Printing and Photography; while deaf females have chosen Home Economics, Social Work, English, Psychology, Office or Clerical Practices, and Medical Technologies (Schroedel, 1987). While there is good evidence that deaf students are tracked based upon stereotypical ideas of what are appropriate careers for

deaf males versus females, and that they perpetuate this segregation in their own choice making, hearing males and females also enter intructional programs in dissimilar proportions. In order to determine how much is gender related and how much is deafness related, we need to look at the percentages of hearing and deaf persons pursuing programs, among both males and females.

Programs of Earned Degrees

The Secondary School Graduate Followup Program gathers instructional program information from its survey respondents. These are coded using A Classification of Instructional Programs (Malitz, 1981). The system covers both vocational and academic subject areas. Table 3 compares the followup sample with national data for degrees awarded using the same instructional classification system. Only programs in which at least one percent of the degrees had been earned are included on the table. All levels of degrees, subbaccalaureate and and higher are combined in the percentages listed for both the sample and national data reported.

Deaf males have earned almost half of their degrees in Engineering Technologies or Precision Production programs. The former includes mechanics and repairers, construction trades as well as all the mechanical, electrical, industrial, environmental and chemical technologies. Precision Production covers all drafting (excluding industrial design), printing, graphic and printing communications, precision food production, metal, leather and woodworking programs.

While deaf males complete programs in Engineering Technologies twice often as males in general, it is among the top three program areas of

study for both subpopulations. A quarter of deaf males complete their

TABLE 3. Instructional Program Categories - Percent of Earned Degrees

FOLLOWUP SAMPLE			NATIONAL DATA	
Males	Females	PROGRAMS	Male	Females
5.8	4.9	Business and Management	23.4	19.0
5.5	31.6	Business and Office	1.7	5.6
6.7	4.1	Computer & Info Sciences	4.4	2.5
5.3	9.5	Education (All types)	5.0	13.2
1.7	0.0	Engineering	10.1	1.5
25.2	.1	Engineering Technologies	11.2	.8
.9	4.9	Allied Health	2.9	15.6
1.9	3.6	Home Economics	.6	2.7
5.5	2.8	Industrial Arts	6.8	1.4
.9	4.1	Liberal/General Studies	6.4	7.6
1.4	2.3	Psychology	2.5	4.5
2.6	1.8	Social Sciences	9.4	7.0
22.2	2.8	Precision Production	5.1	1.2
4.3	2.0	Visual & Performing Arts	3.7	3.6
2.0	.5	Mathematics	1.3	.9

Source: National data is derived from U. S. Department of Education, Center for Education Statistics, 1985-86 survey.

degrees in Engineering Technologies, while an almost equal percentage of males in the general population are evenly divided between Engineering Technologies and Engineering degrees. The distinction between the two major

areas is that an engineering technologist is usually trained to assist an engineer and other professionals. Engineering degrees tend to be baccalaureate or higher level awards, whereas Engineering Technologies degrees are more often (not always) subbaccalaureate level awards.

Among deaf females, nearly a third of all degrees were earned in Business and Office programs. Females in the general population are much more inclined to earn degrees in Business and Management programs versus Business and Office. Deaf females therefore, tend to be concentrated in the clerical rather than management content areas of business programs. These include accounting, bookkeeping, and related, as well as the business data processing, secretarial, typing and general office and related programs. The second ranked program area for earned degrees among deaf females was Education, although the percentage was still slightly less than among females nationally.

A fair percentage of deaf females do earn degrees in Business and Management programs, although deaf males do so at higher rates. Students nationally earn such degrees at a rate four times that of our sample students and the proportionate relationship is the same between same sex persons of each population.

Computer and Information Sciences rank high among areas pursued by both male and female deaf students, and in fact, relatively more often than among hearing peers. It is the focus within the category however, which separates the hearing and deaf groups. Half of the degrees awarded to deaf females were in data processing, with only a few among them in programming. Although deaf males also earned significant percentages of degrees in data processing, more were earned in computer sciences or systems

analyses as compared with females. Nationally the majority of Computer and Information Sciences degrees were earned in the information sciences and systems concentrations. So, despite what on the surface appears to be equivalent, intraprogram differences arise in the studies pursued by deaf and hearing students.

Allied Health presents a similar disparity. It is the second largest category of earned degrees in the female population. Five percent of deaf females also earned degrees in this category, although is one third the rate for females in general. Nursing, Dental Assisting, Medical Laboratory Technology, Rehabilitation Services and Physical Therapy are the majority of degrees earned by females nationally. Deaf females, on the other hand, earned their degrees almost exclusively in Medical Laboratory or Medical Records Technologies.

Clearly there is differentiation by gender. But deafness also appears to define a vocational versus academic distinction for postsecondary educational pursuits. These differences may be owing to availability of programs with support services for the deaf, tradition, or stereotypical placement related to deafness. The disproportionate percentages of deaf males earning degrees in Precision Production and Engineering Technologies, and females, in Business and Office programs, suggests that all of these factors play a role. Moreover, traditional choice-making which is reflective of the deaf culture also contributes to existing patterns.

There were programs not yet significantly represented among degree earners in our deaf sample of either gender.[1] Some were predictable, such

[1] This is not to say that no deaf persons have earned degrees in these areas, but that none have been reported among Followup respondents.

as Military Sciences and Foreign Languages. Very few had earned degrees in Engineering, Physical Sciences, or Health Sciences (includes medicine) Communications, Protective Services or Public Affairs. And as might be expected, few earned degrees in Social Sciences, probably due to the high requirements for English reading and writing skills. Deafness most certainly factors into these exceptions whether they result from barriers perceived or proscribed.

Programs of Enrollment

Career choice patterns of deaf students do appear to be changing somewhat over time as indicated by new areas that are being reported, by decreased enrollments in some traditionally popular programs, and by greater specialization within general program categories typically reported.

Since the attrition rate among deaf college students has been reported as high as 70 percent (Walter, Foster & Elliot, 1987), percentages enrolled in programs cannot be equated with percentages completed. However, where there are clear decreases in enrollment relative to previously earned degrees within program areas, some trends can be forecasted.

Although General Office programs remain popular among deaf females, an increased ratio were majoring in Business Education and Management programs. New areas reported among enrolled females were Photographic, Chemical, Electronics and Electromechanical Technologies. Still, they were predominantly enrolled in Medical Technologies (Allied Health) as well as Data Entry programs. Enrollments were high for both males and females in Computer and Information Sciences, albeit primarily in the programming and data processing branches.

There were several areas which appeared to be losing popularity. Among females, half as many were enrolled in Home Economics as had earned degrees in the past. Significantly fewer reported either Special Education or Education of the Deaf, while many more were enrolled in Elementary and Secondary Education programs. Among males, only half the percentage who had earned degrees were currently enrolled in Industrial Arts or in Precision Production programs. These two categories combined had previously accounted for close to one third of all degrees earned by male respondents. Lastly, although degrees in Library Science were reported by both males and females, none among currently enrolled students reported majoring in such programs.

Again, degree completion cannot be presumed from enrollment. But results show that deaf males and females have been pursuing a wider and changing variety of postsecondary educational programs over the past decade.[2] Whether or not these changes are for the better in terms of employability will be addressed at a later point. First let us look at their employment status to date.

LABOR FORCE STATUS

Perhaps more so than in the culture at large, parents of deaf women have always hoped that their daughters will marry and that husbands will take care of them. And despite the fact that their income is often essential, deaf husbands have disapproved of their wive's working (Becker & Jauregui, 1981). Certainly the prevalent economy has dictated capitulation on such matters. In actuality, deaf women age 20 and over who

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2 For a list of first time instructional programs reported among currently enrolled respondents, see Appendix.

have responded to the followup surveys have participated in the labor force at an average rate of 60 percent. And over the survey years, their rates have been slightly higher than reported for women the same age nationally. This phenomenon has been observed in earlier studies of deaf adults as well (Schein & Delk, 1974). Some have surmised that the higher participation rate of deaf females compared to females overall can be attributed to the need for increased family income, since deaf persons' earnings on the average have been lower relative to hearing persons (Wax & Danek, 1982).

So, in spite of so-called traditional viewpoints, deaf women have been and continue to be part of the labor force as much or more than women in the population as a whole. Their rates are lower relative to deaf men, however, who participate slightly less often than do males nationally.

Age influences labor force participation, due to experience acquired in the work force over time and to continuing educational activities undertaken. Generally speaking, labor force participation rates increase with age and unemployment decreases. Participation is lower among young adults because many are going to school and therefore, are less often employed or seeking employment. Allen, Rawlings and Schildroth (1989) found that young deaf adults participate in the labor force only half as often as hearing peers who are in school - 20 percent of deaf versus 95 percent of hearing students. When asked why, school responsibilities was the most frequent reason given by deaf high school students for not having jobs while in school. Unfortunately, lack of previous work experience has been found to adversely affect deaf and other disabled persons' facility to find jobs once they have graduated (Hasazi, Gordon, Roe, 1985).

The situation is similar among deaf students enrolled in

postsecondary programs. Persons age 16 to 24 nationally who are enrolled in college participate in the labor force at rates 20 percent higher than do deaf college students (NCES, 1988).

TABLE 4. Labor Force Participation Rates of College Students Age 16-24.

	MALES	FEMALES
NATIONAL	51%	45%
FOLLOWUP SAMPLE	31%	24%

Out of the Labor Force

What about respondents who are not a part of the labor force, that is, those who are neither working nor looking for work? Among this sector nearly 70 percent of females and 80 percent of males between that ages of 20-24 are out of the labor force due to school attendance. The next largest percentage cite the need for more skills, and thirdly, but importantly, the feeling that employers are not hiring. Thinking one needs more skills is secondarily related to going to school, but thinking that employers are not hiring is categorized as discouragement relative to one's job prospects. Technically, a discouraged worker is one who is not working, wants a job, but is not presently looking for work because they think they cannot find a job (BLS, 1989).

By age 25 to 34, fewer cite school attendance as a reason for being out of the labor force, although twice as many males as females do. Females on the other hand, more often indicate the need to stay home to care

for their families. But increasingly, both males and females report that they think employers are not hiring. Percentages discouraged is usually industry related, concurrent with the expansions and contractions of the labor markets in which persons are typcially employed.

Employment

One year out of high school, among those who are actively looking for work, they are successful one third as often as their hearing counterparts. By age 20-24, unemployment rates for deaf males and females are reduced, but nevertheless two and half times that of the equivalent age group nationally. This has been a consistent finding each year of the followup survey.

Educational level completed, age, and gender together exercise a significant impact upon employment patterns. Tables 5A and 5B, display unemployment rates of males and females by age groups and education, for the followup sample and the nation, respectively.

It becomes clear in looking at the figures for the Followup sample that the job seeking efforts of males and females bear very different results within the same educational levels. Prior to age 35, among both males and females who have completed only high school, unemployment rates are very similar. And they run generally three to two and a half times higher than for the general population. Beyond age 35, deaf males exhibit unemployment rates which approximate those for the nation. Deaf females, however, continue to experience persistently high unemployment - two and half times higher than among males. Earning a subbaccalaureate degree does not narrow that gap, instead deaf female's rates remain essentially the same

TABLE 5A. Unemployment Rates by Age, Education and Gender - **FOLLOWUP SAMPLE**

	AGE GROUPS			
EDUCATION	18-19	20-24	25-34	35-44+
High School Only				
Males	55.2	40.0	20.8	6.1
Females	59.1	42.9	25.4	15.5
1 - 3 Years College				
Males	/	37.2	12.1	3.3
Females	/	38.0	18.9	15.8
4+ Years College				
Males	/	0.0	4.1	4.4
Females	/	14.3	6.7	2.3

while unemployment among deaf males is reduced further. Even at age 35 and over and having earned subbaccalaureate levels of education, deaf females demonstrate equally high unemployment as reported among those with only high school degrees. The situation continues until they have obtained a baccalaureate or higher level degree, and are over age 24. It is at this point that deaf females report unemployment more in line with the female population who have earned only high school degrees. The real turning point however, occurs when they have reached age 35 and have earned four-year or higher level degrees. Only under these circumstances do they achieve employment parity with hearing peers.

Between the followup sample group and the nation there are more general differences that stand out. First, unemployment rates among the sample who are under age twenty are three times that for persons nationally. Moreover, when only high school degrees have been earned, the disparity

TABLE 5B. Unemployment Rates by Age, Education and Gender - NATIONAL DATA.

	AGE GROUPS			
EDUCATION	18-19	20-24	25-34	35-44+
High School Only				
Males	13.1	10.4	7.6	6.2
Females	13.0	11.1	6.1	5.1
1 - 3 Years College				
Males	/	6.6	4.2	4.0
Females	3.9	4.7	4.4	3.4
4+ Years College				
Males	/	5.5	2.3	1.3
Females	/	4.2	2.4	1.6

Source: Educational attainments of workers. Bureau of Labor Statistics, March 1988.

persists for all ages, with the previously mentioned exception of deaf males age 35 and over, whose rates then coincide with the nation's. In contrast with the deaf sample, the interaction of increased age and education for labor force participants nationally acts to consistently reduce unemployment rates. In addition, the higher relative unemployment of deaf females versus deaf males is not paralleled among workers nationally. It appears that education level alone does not account for the employment rate discrepancies observed between deaf males and females. And it is more disconcerting to find that in spite of having attained subbaccalaureate levels of education, older deaf females experience unemployment rates more similar to those of minority populations under age 25 who have only high school degrees (Employment and Earnings, 1989). It deserves reiterating that these are not women who have elected to stay out of the work force. Rather, they are

women who are either looking for work, or due to their inability to find jobs, have descended to the category of discouraged workers. Why deaf women experience such severe unemployment relative to deaf men with similar education is not immediately clear. There are most certainly intervening factors, one of which may be choice of degree program.

OCCUPATIONS

If it can be concluded that education and training paths taken provide transition to corresponding occupations, then we would expect that the occupations reported by employed graduates would reflect their educational backgrounds.

Much of the literature on the occupational status of deaf persons has alluded to concerns that they are often underemployed. That is, they are employed at levels not commensurate with skills or education. Moreover, as a group deaf people have been employed in a narrower range of occupations than hearing people. Deaf women relative to hearing women have been more often employed as operatives or laborers, while hearing women were two and a half times more likely to work in professional, technical and managerial jobs.

Traditionally deaf males have been employed most often as precision production, craft or repair workers, or as operatives and laborers (Schein and Delk, 1974). Barnartt and Christiansen (1985) concluded from their study on a small sample of the Census of the Deaf Population comparing years 1972 to 1977, that deaf males were more likely to be in professional and managerial postions while deaf females were employed in a clerical capacity. Moreover, it was noted that deaf females also have been underepresented in

craft occupations relative to deaf males, and to hearing persons generally (Barnartt and Christiansen, 1985). The Secondary School Followup also has found that deaf persons are overrepresented in the lower skilled occupations relative to hearing persons. The distribution of deaf males and females among the occupational categories reveals a slightly different pattern, however, than found in the Barnartt and Christiansen study. [3]

The Followup Program gathers detailed occupational data on deaf secondary graduates which is encoded using the 1980 Census of the Population Occupational Classification System (Bureau of the Census, 1980), as is national occupational data reported by the Bureau of Labor Statistics. Table 6 presents the distribution of the general population and the deaf sample among the major occupational categories. All educational and age groups are combined.

Looking first at gender differences among our sample, more than a third of males are working in unskilled jobs as Operators and Laborers, and second, about equally in Precision Production or Technical positions which are considered semi- or skilled areas. Over half of all deaf females in contrast, are working in Technical and Administrative Support postitions, and the remaining majority in Operators and Laborers, or Service occupations. Interestingly, a higher percentage of females relative to males are employed in Managerial or Professional Specialty occupations.

Deaf and hearing comparisons reveal different occupational patterns. Deaf males are more often working in unskilled positions

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Barnartt and Christiansen noted a suspected bias in their sample toward respondents with relatively higher socioeconmic status than is the norm for the deaf population at large.

TABLE 6. Occupational Category Distribution of Groups by Gender.

OCCUPATIONS	FOLLOWUP SAMPLE		NATIONAL	
	Male	Female	Male	Female
Operators, Fabricators & Laborers	34.9%	18.1%	20.7%	8.9%
Precision Production, Craft & Repair	14.3%	2.8%	19.5%	2.3%
Farming, Fishing & Forestry	3.1%	1.6%	3.8%	.9%
Service Occupations	18.0%	16.5%	9.8%	18.0%
Technical, Sales & Admin. Support	22.9%	51.6%	20.0%	43.7%
Managerial & Professional Specialty	6.9%	9.5%	26.2%	26.2%

Source: National data from Employment and Earnings, March 1989.

relative to hearing males, and only one fourth as often in Managerial and Professional Specialties. Moreover, twice the percentage of deaf versus hearing males are employed in Service occupations.

Comparisons between females in the two groups reveal that deaf females are employed one third as often in Managerial and Professional positions as hearing counterparts, and are twice as often working in jobs which are considered unskilled or semiskilled. Females in general are highly concentrated in Technical and Administrative Support positions, but deaf females are even more so. And it should be mentioned that females, hearing or deaf, are seldom employed in Precision Production, Craft and Repair occupations, while it is a significant occupational area among males

overall.

This provides a general view of occupational distributions of deaf and hearing and male and female employed persons. Discrepancies between the hearing and sample groups are much more revealing, however, when broken down by educational level. Table 7A contains percentages employed in the six major occupational categories, broken down by education and gender for our sample and Table 7B, for the nation.

TABLE 7A. Occupational Distributions by Education Level and Gender - THE FOLLOWUP SAMPLE.

OCCUPATIONS	HIGH SCHOOL ONLY	1 - 3 YR DEGREE	4 YEAR DEGREE OR HIGHER
Managerial & Prof. Specialty			
Males	1.7%	5.6%	64.8%
Females	2.7%	7.1%	68.5%
Technical, Sales & Admin. Support			
Males	21.3%	30.5%	22.0%
Females	51.2%	69.7%	23.6%
Service Occupations			
Males	21.1%	10.3%	3.3%
Females	19.4%	9.0%	5.6%
Precision Prod., Craft & Repair			
Males	13.1%	23.9%	3.3%
Females	3.6%	.6%	/
Operators, Fabrs. & Laborers			
Males	39.3%	27.7%	5.5%
Females	21.4%	12.3%	1.1%
Farming, Fish. & Forestry			
Males	3.5%	1.9%	1.1%
Females	1.7%	1.3%	1.1%

The most salient difference between our sample and the general population is that deaf workers are far less often employed in skilled occupations or professions when they do not have certifications or college degrees. At levels below the baccalaureate degree, relatively small percentages of deaf adults are employed in Managerial and Professional

Specialty occupations, whereas a quarter of the general population with the same education level are employed in this category. Not until bachelor's or master's degrees have been earned are deaf persons employed in Managerial and Professional areas at percentages equal to those of hearing peers.

TABLE 7B. Occupational Distributions by Education Level and Gender - THE NATION.

OCCUPATIONS	HIGH SCHOOL ONLY	1 - 3 YR DEGREE	4 YEAR DEGREE OR HIGHER
Managerial & Prof.Specialty			
Males	10.9%	23.7%	65.5%
Females	12.0%	24.8%	66.2%
Technical, Sales & Admin. Support			
Males	18.0%	30.0%	22.7%
Females	53.4%	56.6%	27.7%
Service Occupations			
Males	10.5%	10.2%	3.0%
Females	19.8%	13.0%	3.7%
Precision Prod., Craft & Repair			
Males	27.9%	18.8%	4.0%
Females	2.8%	1.8%	.8%
Operators, Fabrs. & Laborers			
Males	28.0%	14.8%	3.5%
Females	11.0%	3.2%	1.1%
Farming, Fish. & Forestry			
Males	4.7%	2.6%	1.1%
Females	1.0%	.6%	.4%

Diametrically, deaf males and females who had earned one- to three-year degrees, were employed as Operators or Laborers at rates equal to hearing persons who had only high school education. So, it appears that deaf people at educational levels below the bachelor's degree are underrepresented in the higher skilled occupations, and overrepresented in the lesser skilled occupations.

Exceptions to this observation do occur in two areas, however. The relatively higher rate of subbaccalaureate degrees earned by deaf males in

Precision Production programs, and in Business and Office programs by deaf females relative to hearing persons translates to higher relative percentages employed in direclty linked occupational areas, i.e., precision production for deaf males, and administrative support occupations for deaf females.

Socioeconomic Status

What is not immediately obvious from these data is the fact that within the six major categories of occupations there exist hearing versus deaf, and male versus female disparities that ultimately effect overall socioeconomic outcomes. In order to discern what the relative socioeconomic of our Followup sample respondents is, the Socioeconomic Index (SEI) was employed with the data (Stevens & Cho, 1985).[4] The index enables socioeconomic distances between occupations to be described by incorporating earnings and education data related to occupations, assigning each a score. Scores for the scale range from a low of 13.98 for some operative jobs, to a high of 90.45 for some professional specialty jobs. Table 8 compares the mean SEI scores for the Followup sample, males and females separately, to the mean scores for the Index.[5]

Looking at the table one can see that there are in some cases, large differences in scores for intraoccupational categories. The subgroupings Technical, Sales, and Administrative Support illustrates

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[4] The SEI has two scales. One is the MSEI which is based on male data only, and the other is the TSEI which combines male and female data. The TSEI scale was used in this analysis.

[5] The SEI was developed using the total 1980 Labor Force.

TABLE 8. Mean Socioeconomic Scores for 1980 Major Occupational Groupings

OCCUPATIONS	FOLLOWUP SAMPLE Male	Female	NATION Total
I. Executive, Admin. & Managerial	56.75	56.96	53.34
II. Professional Specialty	67.80	63.90	68.51
Technicians & Related Support	51.90	52.92	46.80
Sales occupations	35.96	31.76	37.36
Administrative support	29.07	28.40	31.21
III. Private Household	14.83	16.93	15.71
Protective Services	24.17	N/A	30.13
Service (exc.private household)	19.30	20.55	20.23
IV. Farming, Forestry & Forestry	21.19	19.69	21.67
V. Precision Prod.,Craft & Repair	23.55	21.50	26.60
VI. Operatives, Assemblers, Inspectrs.	21.71	19.17	19.01
Transport. & Material Movers	20.56	21.96	21.89
Handlers, Equip.cleaners, Laborers	18.57	17.90	18.70
OVERALL MEAN TSEI	27.16	29.48	34.48

this point best. A wide range of job types and levels are contained within the major heading and they vary greatly in socioeconomic status. The category links what have in the past been dichotomized as "white collar versus "blue collar" occupations. There are at once all technical specialty, sales and clerical jobs. Clerical positions are generally on the lower end of the pay range, and technical or sales, on the higher end. Some require postsecondary education and others do not which in part

explains the large numbers employed therein. Deaf females are highly concentrated (nearly half) in clerical or what have been termed "pink collar ghettos", and their SEI scores for these positions fall below the mean for the scale and below that of deaf males. Deaf males are more often in engineering and photographic technologies or accounting and their SEI scores are relatively high for these positions. Deaf females apparently fare favorably for SEI in technical positions provided they are able to obtain them.

The socioeconomic scores of our sample group in some instances are high relative to the general population, for example, executives, administrators and managers; and operatives, assemblers and inspectors. However, when one considers the areas where the majority of the sample group are employed, these figures take on different meaning. As described earlier, deaf males are most often employed as operatives and laborers, then as technicians or aministrative support workers, and in similar percentages as service workers or precision or repair workers. Their scores in service occupations and in precision production and repair, which are also high areas of employment among them, are comparatively lower than for persons generally. Deaf females exhibit very high relative SEI's as executives or managers. But again, very few of them are employed in that classification. Professional deaf females hold predominantly professional specialty versus executive or managerial positions, and their SEI scores fall short of both deaf males and the general population similarly employed.

These results suggest that for the most part our deaf group competes well enough provided they have more education. While this may be true, the majority of the sample are concentrated in less skilled

categories, where they tend to fall below the average for SEI. And as a reminder, it was demonstrated that as a group they have more education relative to hearing peers for the categories in which they are employed. That is, many who are employed in unskilled or semiskilled jobs have subbaccalaureate levels of education. Although it is not the primary subject of this study, earnings are inextricably tied to occupational outcomes. The particular types of occupations that deaf persons overall tend to be employed in are frequently the lower paying. And in spite of an overall SEI which is slightly higher than that for deaf males, deaf females occupy the lowest income bracket of all relative to hearing persons or deaf males (Barnartt & Christiansen, 1985; Crammatte, 1987; MacLeod-Gallinger, 1983-1988).

Education at the baccalaureate level and higher seems to even out some of the imbalance observed between the occupational attainments of deaf and hearing persons. Looking solely at the percentages employed within the broad occupational categories, it would appear that deaf respondents who have bachelor's and master's degrees maintain parity with similarly educated hearing persons. However, in terms of socioeconomic status and income, they do not. Reasons for this condition relate to specific jobs held within categories, their industries of employment, and to the labor market sector of industries where employed. In fact, income data from numerous studies has shown that deaf persons in professional jobs on the whole earn less than hearing persons.

In his study of deaf professionals Crammatte (1987) found that 58 percent of deaf women were employed as teachers as compared with 35 percent of deaf males. Another 12 percent of females were in human

services, that is, counseling, social and recreational work, or health technologies, also more frequently than among deaf males. Table 9 presents occupations of employment among deaf males and females in the Followup study who had earned bachelor's and master's degrees.

Findings are very similar for the two study samples. The largest percentage of both males and females are in fact, employed as teachers. And second, whereas females are more often counselors or directors of services, males are managers and administrators, or accountants.

The difference between occupations of deaf and hearing professionals is not meant to be interpreted in terms of intrinsic value, but of prestige and pay levels. Deaf professionals are segregated into fewer occupations, which are lower in socioeconomic status. Restricted access to occupations, particularly those of higher socioeconomic status,

TABLE 9. Occupations of Bachelor's and Master's Degree Earners in the Followup Sample.

OCCUPATIONS	
MALES	FEMALES
37.4% Teachers	55.6% Teachers
16.9% Managers & Administrators	14.8% Counselors
11.9% Accountants	9.7% Directors of Services
8.5% Computer Analysts	3.3% Computer Analysts
6.8% Counselors	3.3% Biologists
5.1% Engineers	3.3% Librarians
3.4% Librarians	3.3% Social Workers
3.4% Social Workers	1.0% Actresses

is given as one explanation for the difference between hearing and deaf occupational patterns (Shroedel, 1987). Career mobility factors have also been suspected as reason for the relatively lower attainment among deaf

adults. Mobility in this case refers primarily to inter-occupational and salary mobility. Deaf workers as a group tend to "top out" earlier in salary growth, generally receive promotions or move into managerial positions less often, and exhibit fewer job changes within a career span (Welsh, 1987). Finally, some ascribe the relative lower status of deaf versus hearing workers to the overall quality of education they receive and resultant achievement levels, which thereby limit academic attainments, and thus, white collar employment (Barnartt & Christiansen, 1985).

Comparatively lower occupational attainment among deaf persons has also been attributed to their tendency to be employed in the deaf versus hearing sector of industries. The deaf sector is defined as that which primarily serves deaf people, or employs deaf people because of their hearing status, while hearing sector jobs are those that serve the general public (Coye, 1987). The hearing sector was found to pay approximately $6000 more per year than the deaf sector, and further, to provide greater opportunity for promotion. Moreover, a large majority (86 percent) of deaf female professionals were found to be employed in the deaf sector (Crammatte, 1987).

The Followup Program does not record deaf versus hearing sector per se, but similar information can be derived from industry information, which it does record. Table 10 shows that among the deaf sample, over 50 percent of males, and 70 percent of females with bachelor's or master's degrees were employed in educational institutions, elementary to college levels inclusive.[6]

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6 Industries employing less than one percent of the sample were not included on the table.

TABLE 10. Industries where Followup Bachelor's and Master's Degree Earners are Employed.

INDUSTRIES	
MALES	FEMALES
42.4% Elementary/Secondary Schools	55.7% Elementary/Secondary Schools
10.2% Colleges	14.8% Colleges
10.2% Government	9.8% Government
10.2% Social Services	6.6% Social Services
5.1% Insurance	3.3% Libraries
3.4% Rehabilitation Offices	3.3% Theater
3.4% Computer Services	1.6% Health Services
1.7% Engineering Services	
1.7% Professional Services	

One can conclude with a fair amount of certainty, that the majority are educational institutions serving the deaf. The second largest employer is the government, employing ten percent of males and females alike. Although it is not considered part of the deaf sector, the government has long been a frequent employer of deaf persons. Social Services is the third ranked industry of employment among our sample. Again, it can be legitimately assumed that either these agencies serve primarily a deaf clientele, or that deaf individuals are employed by them to specifically serve their clients who are deaf. So indeed there is in effect a divided work force among professionals, one which locates deaf workers, and overwhelmingly deaf females, in organizations which primarily serve other deaf persons.

CONCLUSIONS

Although postsecondary degree completion plays a large role in the attainments of deaf adults, it is clear that there are numerous intervening factors that influence the overall labor force and occupational patterns of deaf persons. The cumulative effects of: sex-role stereotyping; less adequate science curriculums and weaker academic preparation generally; limited career education and guidance; narrow range of career options; communication difficulties and resultant isolation from information as compared to the hearing population; and ultimately, job discrimination based upon deafness, can result in what amounts to career-arrested development. And these effects appear to be compounded for deaf women. Deaf people as a group are less educated, two to three times more often unemployed, often underemployed, and have overall lower incomes relative to hearing counterparts. These observations are not revelations. They do indicate that some things have not changed a great deal over time for deaf persons. Moreover, they confirm that the relative status of deaf women has not kept pace with deaf men despite some gains that deaf persons otherwise, have achieved.

What has this study revealed about deaf females? For one, they do complete postsecondary programs as often as deaf males, which is less than half the rate of their hearing peers, and usually earn subbaccalaureate degrees. Comparatively more earn master's level degrees, but go on to earn doctorates one fourth as often as deaf males. The majority of their degrees are in Business and Office programs and to a lesser extent, Business and Management; Education; then Health Technologies, followed by Data Processing.

Without postsecondary educations both experience high unemployment rates similar to that of minority youth populations. Around age 35 when deaf males become less statistically distinguishable from the rest of the labor force, deaf females continue to suffer high unemployment regardless of having earned subbaccalaurete degrees. Part of the high unemployment among deaf women between age 25 and 35 may in fact be discouragement. That is, while they may want to work, they have not persisted in their search because they either don't believe they can get a job, or the jobs they could get are so low paying that the income benefits are overridden by expenses working incurs, such as childcare and transportation. Add to these factors potential isolation in the work setting, and little incentive remains to find a job unless one has no other source of income. More recently (fourth quarter 1990) there was a significant increase in numbers of workers categorized as discouraged workers and it occurred almost exclusively among women (BLS, 1991). It is probably reasonable to assume that this increase is not only reflected within the female deaf population, but surpassed by it.

For those who have achieved bachelor's degrees, unemployment and underemployed are markedly reduced. These deaf women are usually professionally employed, albeit earning overall lower salaries than deaf males, and much lower salaries than similarly employed hearing persons. Why? Because deaf professional women are highly segregated in the deaf sector of employment in occupations relatively lower in prestige such as teachers and counselors. However, when employed in managerial or executive capacity, generally a third as often as hearing females, they are so at comparatively high socioeconomic levels.

Deaf women with or without subbaccalaureate degrees who do find employment are typically in clerical positions such as data keyers; typists; accounting, file and inventory clerks; mail sorters and the like. If employed in technical positions, they are almost exclusively medical records or medical laboratory technicians. They are also heavily represented among the Service, and Operatives and Laborers occupations generally considered to be semi or unskilled such as cleaners, maids, and assemblers, handlers and machine operators, as are more than half of all blacks and Hispanics nationally. Associated with all three occupational groupings also below average earnings (Silvestri & Lukasiewicz, 1989).

IMPLICATIONS

How are deaf women positioned in terms of the near future? Demographers and economists tell us that the market for unskilled workers is shrinking as we shift toward a workforce required to have greater education and training. Analytical, problem-solving and information processing skills will be demanded. Jobs that are now in the middle of the skill distribution will be the least-skilled occupations of the future, and there will be fewer actual jobs for the unskilled. For example, assembly line workers in many manufacturing plants now need to learn statistical process control, a system beyond the educational level of many young workers, unless they have the mathematical background (Johnston & Packer, 1987).

Deaf men and deaf women are still primarily employed in the lower skilled categories of Operatives and Laborers, Service and Administrative Support. Traditionally Manufacturing has provided most jobs for operatives

and laborers. But as we move toward the 21st century Manufacturing is decreasing its hold in the work force while Services and Retail Trade are increasing. Middle to low skilled jobs are concentrated in Service industries in which wage gains and productivity have been weak. Although there will be a growth Services occupations, that growth will be for more skilled, not unskilled workers. Economists portend a two-tiered labor force. For the unskilled or inappropriately skilled, this means low wage jobs such as janitors, cleaners, food counter and food preparation workers. On the other side will be the need for better educated middle managers and professionals/technicians who will have increased wages. Furthermore, unless the nation's weak skilled individuals are brought up to a higher standard of education and skills, unemployment will likely rise for them.

The labor pool will increasingly consist of minorities and women as we draw toward the close of this century. For minority workers the changes in the nation's demography and economy can offer either a risk or a great opportunity. With fewer young workers entering the workforce, the competition for jobs will be lower and there will be greater interest on the part of employers to offer jobs and training to those traditionally ignored (Johnston & Packer, 1987). Will this include young deaf women? Without the necessary training and yes, language skills, it will not. Will they then be relegated to occupying the "pink-collar ghettos" where their work will be increasingly isolated and viewed as less skilled than their coworking technicicans, sales staff and managers, and thereby earning lower wages (Bailey, 1988)? Or will they land the other lower paying, unskilled Service and Retail jobs such as maids, cleaners and fast food servers?

Our country has become one in which everyone is expected to work -

and that includes women with young children. Deaf women are not excluded from this expectation. Unless they are trained and able to find employment in adequately paying jobs, they will be unable to participate, simply because it will be too costly for them to do so, not to mention dissatisfying. Deaf women have the right to expect a return on their personal investment toward postsecondary education as much as their peers, and not to expect a disproportionate burden of underemployment and worse, unemployment.

What are the job prospects for the near future? Health-related, occupations are the fastest growing, expecially home health aides. All kinds of health technicians and therapists will be in demand. Thus far deaf females are only earning degrees in medical records or medical laboratory technologies, just a small segment of the health technologies arena. Data processing equipment repairers, computer programmers and systems analysts will be required. Many more paralegals are going to be needed as well (Silvestri & Lukasiewicz, 1989). The occupations projected to have the largest actual numbers of openings will be for accountants and auditors, teachers, licensed practical nurses, general managers, and general office clerks. Deaf women are already concentrated in clerical positions even when they have associates degrees. If their opportunities are not expanded status quo will surely relegate them to the unskilled lower paying jobs.

If we acknowledge that our country's progress within the current international market depends upon developing our human capital, then we must understand that education and training are the means by which we maintain and enhance our human resources. Deaf individuals, and specifically in this case, deaf women need and desire to be a part of that enrichment.

Therefore, educational and career guidance must include young deaf women in attempts to respond to the need for skilled productive workers. Expanding the Medical/Health technology programs available to young deaf women, as well as the Business, Engineering and Technologies should be one goal.

Retention of students will be a goal for all higher educational institutions, but all the more for deaf students who are capable and interested in pursuing degrees in Business, Health, Education, and Computer Information Sciences. The labor market does not need more data entry keyers, rather it needs operators, programmers and analysts. Deaf women should be targeted for new instructional programs and encouraged, supported and counseled accordingly, not pigeoned-holed into low growth, low skilled occupations. Career awareness programs need rekindling and support so that deaf adolescent females are directed toward the future instead of the past. Surely the gender stereotypes that they have internalized, and that impose barriers to their career development can be overcome by concerted educational intervention.

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APPENDIX

First Time Reported Instructional Programs Among Current Students

FEMALES	MALES
Architecture	
Mental Health/Human Services	Horticulture
Communication and Communication Technologies	Paramedic Technology
Dietetics & Human Nutrition	Forestry
Recreational Technician	Recreational Therapy
Art Education	Architecture
English Education	Fashion Design
Teacher Education	Financial Marketing Services
Teacher Education, Other	Teacher Aide
Graphic Design	Communications, General
Medical Social Work	Physics
Jewelry Design	Radio & TV, General
Anthropology	Counseling Psychology
Illustrative Design	Educational Media Technology
Public Relations	Developmental Psychology
Management of Information Systems	Teacher Education, Other
Radio & TV Technologies	Public Policy
Transportation and Travel Marketing	